PATENT ABSTRACTS OF JAPAN

(11)Publication number : 10-291689
(43)Date of publication of application : 04.11.1998

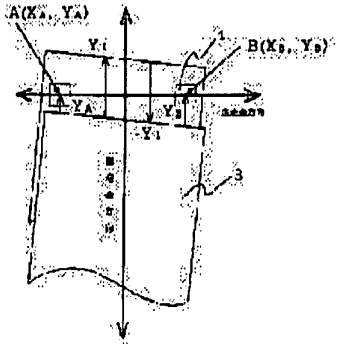
(51)Int.Cl. B65H 7/08
B41J 11/42
B41J 13/00

(21)Application number : 09-099476
(22)Date of filing : 16.04.1997

(71)Applicant : SEIKO EPSON CORP
(72)Inventor : FUJIMORI SOICHI

PRINTER

(57)Abstract:
PROBLEM TO BE SOLVED: To precisely and inexpensively detect inclination of a printed medium, and avoid printing out of the printed medium, by providing an arithmetic device which stores carrying distance between the printed medium, which is carried by a carrying mechanism, and a detector and calculates inclination of the printed medium.
SOLUTION: An printed medium 3 is carried in the auxiliary scanning direction by a printed medium carrying mechanism. First, position (XA, YA) derived from carrying distance YA shown when a detector 1 detects the edge of the printed medium which is carried by Y1 in the auxiliary scanning direction at a main scanning position A is stored in a storage. Next, the printed medium is carried by -Y1, and the detector is moved to a main-scanning directed position B. The printed medium is carried again until the detector detects the edge of the printed medium, its position (XB, YB) derived from its carrying distance YB is stored. Inclination of the printed medium in relation to the main-scanning direction is calculated using the arithmetic device based on these two positional information (XA, YA), (XB, YB).



LEGAL STATUS

[Date of request for examination]
[Date of sending the examiner's decision of rejection]
[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]
[Date of final disposal for application]
[Patent number]
[Date of registration]
[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against examiner's decision of rejection]
[Date of extinction of right]

* NOTICES *

1.This document has been translated by computer. So the translation may not reflect the original precisely.
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

CLAIMS

[Claim(s)]
[Claim 1] The airline printer characterized by having the storage which memorizes the mileage [illegible]en services of said printed media conveyed according to one printed-media detector which [illegible]cts the existence of printed media, the printer conveyance device in which this is conveyed, the printed-media conveyance device in which said printed media are conveyed, and these conveyances device, and said detector, and the arithmetic unit airline printer which computes the inclination of said printed media, and detecting the inclination to the printing direction of said printed media with said detector.
[Claim 2] Said detector is an airline printer according to claim 1 characterized by serving as detecting the width of face of printed media.

[Translation done.]

* NOTICES *

1.This document has been translated by computer. So the translation may not reflect the original precisely.
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Field of the Invention] This invention relates to the detection device and the detection approach of printed media in an airline printer.
[0002]
[Description of the Prior Art] In the conventional airline printer, two detectors for measuring a printed-media inclination are formed in parallel with a main scanning direction.
[0003]
[Problem(s) to be Solved by the Invention] When setting a printing medium in an airline printer, it is difficult to double an inclination correctly. If printed media lean, it will print at the place from which printed media separated from the print span measured in early stages while continuing printing, and it separated from printed media as a result. In the pin crease and the ink jet printer, the fault of the ink dirt of a platen had occurred according to such a condition at the dot impact printer.
[0004] Moreover, in printing of a document etc., the fault that it could not print in a desired part with the inclination of printed media (document) arose, and printed media were made useless as a result.
[0005] In a Prior art, since two detectors were needed, an exact inclination was not able to be measured according to the installation position error of a detector, and the difference of the detection sensitivity of a detector.
[0006] Then, this invention offers the means which does not print at the place which separated from the inclination of printed media from printed media by detecting cheaply correctly.
[0007]
[Means for Solving the Problem] The airline printer of this invention is characterized by having [redacted] storage which memorizes the mileage between services of the printed media conveyed according to the printed-media detector (a detector is called henceforth) which detects the existence of printed media, the printer conveyance device in which this is conveyed, the printed-media conveyance device in which printed media are conveyed, and both the conveyances device, and a detector, and the arithmetic unit which computes the inclination of printed media.
[0008] The inclination of printed media is detected by detecting two or more edges of printed media with the above-mentioned means.
[0009]
[Function] The edge of the printed media conveyed according to the printed-media conveyance device is detected by the detector. This location is memorized by storage as two-dimensional positional information with the distance (the direction location of vertical scanning) in which printed media were conveyed according to the conveyance device, and the distance (main scanning direction location) in which the detector was conveyed.
[0010] The inclination to the main scanning direction of printed media is computed by the arithmetic unit by detecting at least two or more edges.
[0011]
[Embodiment of the Invention] A drawing is used for below and an example is explained to it.

[0012] The printer conveyance device in which 2 attached the detector for the detector with which 1 had measured the width of face of printed media conventionally is shown, respectively, and a detector moves to a main scanning direction.
[0013] 3 shows printed media and is conveyed in the direction of vertical scanning according to a printed-media conveyance device.
[0014] The location (XA and YA) is memorized to storage from the amount YA of conveyances which detected the edge of the printed media with which the detector was first conveyed Y1 in the direction of vertical scanning in the main scanning direction location A. Next, printed media are conveyed -Y1 and a detector is moved to the main scanning direction location B. It conveys until a detector detects the edge of printed media again, and the location (XB and YB) is memorized from the amount YB of conveyances to storage.
[0015] The inclination of the printed media to a main scanning direction is computed with an arithmetic unit from this positional information (XA and YA) of two points, and (XB and YB).
[0016]
[Effect of the Invention] According to this invention, it cannot be concerned with the installation location and detector sensibility of a detector, but the inclination of printed media can be detected correctly, and it can prevent printing outside a printable area. Therefore, the fault of the ink dirt to the pin crease with a dot impact printer and the platen in an ink jet printer generated by the conventional printer etc. can be prevented.
[0017] Moreover, warning can be emitted to the insertion inclination of an extreme printing medium, and a printing mistake can be prevented.
[0018] Furthermore, since the detector formed in the conventional airline printer can be used according to the example, this invention can be carried out more cheaply.
[0019] Moreover, more nearly quality printing can be performed by amending a printing image with the inclination of printed media.

[Translation done.]

* NOTICES *

1.This document has been translated by computer. So the translation may not reflect the original precisely.
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]
[illegible]ing 1] It is the block diagram showing one example of this invention.
[illegible]ing 2] It is the detection approach Fig. showing one example of this invention.
[Description of Notations]
1 .... Printed-media detector (detector)
2 .... Printer conveyance device
3 .... Printed media

[Translation done.]

(19)日本国特許庁（ＪＰ）　(12)公開特許公報（Ａ）　(11)特許出願公開番号

特開平10－291689

(43)公開日　平成10年(1998)11月４日

(51)Int.Cl.[6]	識別記号	ＦＩ		
Ｂ６５Ｈ　7/08		Ｂ６５Ｈ　7/08		
Ｂ４１Ｊ　11/42		Ｂ４１Ｊ　11/42		Ｍ
13/00		13/00		

審査請求　未請求　請求項の数２　ＯＬ　（全３頁）

(21)出願番号　特願平9－99476

(22)出願日　平成９年(1997)４月16日

(71)出願人　000002369
セイコーエプソン株式会社
東京都新宿区西新宿２丁目４番１号

(72)発明者　藤森　宗一
長野県諏訪市大和３丁目３番５号　セイコーエプソン株式会社内

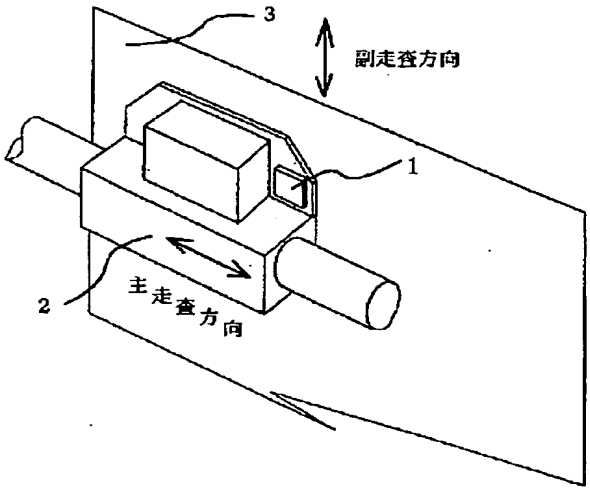
(74)代理人　弁理士　鈴木　喜三郎　（外２名）

(54)【発明の名称】　印刷装置

(57)【要約】

【課題】　検出器の取り付け位置、検出器感度の固体差に関わらず正確な被印字媒体の傾きを検出する印刷装置の提供。

【解決手段】　印字装置搬送機構に取り付けた１個の被印字媒体検出器により、被印字媒体のエッジを２ヶ所検出し、被印字媒体の傾きを算出する。



1

【特許請求の範囲】

【請求項１】　被印字媒体の有無を検出する１つの被印字媒体検出器、これを搬送する印字装置搬送機構、前記被印字媒体を搬送する被印字媒体搬送機構、これら搬送機構により搬送される前記被印字媒体と前記検出器の搬送距離を記憶する記憶装置と、前記被印字媒体の傾きを算出する演算装置印刷装置とを備え、前記被印字媒体の印刷方向に対する傾きを前記検出器にて検出することを特徴とする印刷装置。

【請求項２】　前記検出器は被印字媒体の幅を検出することを兼ねることを特徴とする請求項１記載の印刷装置。

【発明の詳細な説明】

【０００１】

【発明の属する技術分野】本発明は、印刷装置における被印字媒体の検出機構及び検出方法に関するものである。

【０００２】

【従来の技術】従来の印刷装置では、被印字媒体傾きを測定するための２個の検出器が主走査方向に平行に設けられている。

【０００３】

【発明が解決しようとする課題】印刷装置に印字媒体をセットする時に正確に傾きを合わせる事は困難である。被印字媒体が傾いていると、印刷を続けるうちに初期に測定した印刷幅から被印字媒体が外れてしまい、結果として被印字媒体から外れたところに印刷してしまう。このような状態により例えばドットインパクトプリンタではピン折れや、インクジェットプリンタではプラテンのインク汚れといった不具合が発生していた。

【０００４】また、帳票などの印刷においては、被印字媒体(帳票)の傾きにより所望の箇所に印刷できないといった不具合が生じ結果として被印字媒体を無駄にしていた。

【０００５】従来の技術では、検出器を２個必要としていたため、検出器の取り付け位置誤差、および検出器の検出感度の差により正確な傾きを測定できなかった。

【０００６】そこで本発明は被印字媒体の傾きを正確に安価に検出する事で被印字媒体から外れたところに印刷を行なわない手段を提供するものである。

【０００７】

【課題を解決するための手段】本発明の印刷装置は、被印字媒体の有無を検出する被印字媒体検出器(以降、検出器と呼称する）と、これを搬送する印字装置搬送機構、被印字媒体を搬送する被印字媒体搬送機構、また両搬送機構により搬送される被印字媒体と検出器の搬送距離を記憶する記憶装置と、被印字媒体の傾きを算出する演算装置を備える事を特徴とする。

【０００８】上記手段により被印字媒体のエッジを複数検出する事により、被印字媒体の傾きを検出する。

2

【０００９】

【作用】被印字媒体搬送機構により搬送された被印字媒体のエッジは、検出器により検出される。この位置は被印字媒体が搬送機構により搬送された距離（副走査方向位置）と検出器が搬送された距離（主走査方向位置）により２次元の位置情報として記憶装置に記憶される。

【００１０】すくなくとも２箇所以上のエッジを検出する事により被印字媒体の主走査方向に対する傾きが演算装置により算出される。

【００１１】

【発明の実施の形態】以下に図面を用い実施例について説明する。

【００１２】１は従来被印字媒体の幅を測定していた検出器を、２は検出器を取付けた印字装置搬送機構をそれぞれ示し、検出器は主走査方向に移動する。

【００１３】３は被印字媒体を示し、被印字媒体搬送機構により副走査方向に搬送される。

【００１４】まず検出器が主走査方向位置Ａにて副走査方向にＹ１搬送された被印字媒体のエッジを検出した搬送量ＹＡからその位置（ＸＡ、　ＹＡ　）を記憶装置に記憶する。次に被印字媒体を－Ｙ１搬送し、検出器を主走査方向位置Ｂに移動する。再度被印字媒体のエッジを検出器が検出するまで搬送しその搬送量ＹＢからその位置（ＸＢ、　ＹＢ　）を記憶装置に記憶する。

【００１５】この２点の位置情報（ ＸＡ、　ＹＡ　）、（ＸＢ、　ＹＢ　）から演算装置により主走査方向にたいする被印字媒体の傾きを算出する。

【００１６】

【発明の効果】本発明によれば、被印字媒体の傾きを検出器の取り付け位置及び検出器感度に関わらず正しく検出する事ができ、印字可能領域外に印刷する事を防ぐ事が出来る。従って従来のプリンタ等で発生していた、ドットインパクトプリンタでのピン折れや、インクジェットプリンタでのプラテンへのインク汚れといった不具合を防ぐ事が出来る。

【００１７】また、極端な印字媒体の挿入傾きに対し警告を発する事ができ、印刷ミスを防ぐ事が出来る。

【００１８】さらに、実施例によれば従来の印刷装置に設けられていた検出器を利用する事が出来るのでより安価に本発明を実施する事が出来る。

【００１９】また、被印字媒体の傾きにより印刷イメージを補正する事により、より高品質な印刷を行なう事が出来る。

【図面の簡単な説明】

【図１】本発明の一実施例を示す構成図である。

【図２】本発明の一実施例を示す検出方法図である。

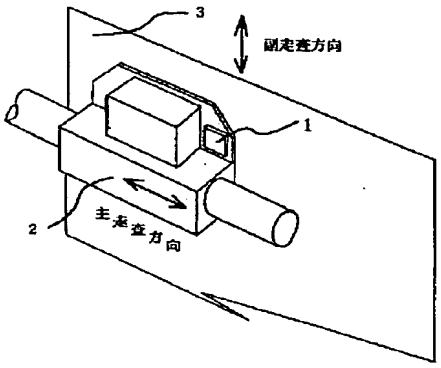
【符号の説明】

１‥‥被印字媒体検出器(検出器)

２‥‥印字装置搬送機構

３‥‥被印字媒体

【図１】



【図２】